

WHAT IS CLAIMED IS:

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1. An image processing apparatus, comprising  
a first signal processing circuit for applying  
gamma correction to an n-bit ( $n$ : a natural number)  
digital signal inputted as a video signal, and for  
converting the digital signal into an m-bit ( $m > n$ ,  $m$  :  
a natural number) digital signal; and

a second signal processing circuit for adding a  
noise signal to the m-bit digital signal from said  
first signal processing circuit, and for outputting a  
Q-bit ( $Q$ : a natural number) digital signal obtained  
from rounding off a less significant ( $m - Q$ ) bit ( $Q \leq$   
 $n$ ) from the m-bit digital signal.

2. The image processing apparatus as set forth in  
Claim 1, wherein:

said first signal processing circuit includes bit  
converting means for converting the inputted n-bit  
digital signal into the m-bit digital signal in  
accordance with a pre-set value.

3. The image processing apparatus as set forth in  
Claim 2, wherein:

said bit converting means is a Look Up Table which  
outputs the m-bit digital signal that is the present

value in accordance with the inputted n-bit digital signal.

4. The image processing apparatus as set forth in Claim 2, wherein:

said bit converting means is a calculating device for converting the n-bit digital signal into the m-bit ( $m > n$ ) digital signal by numerical calculation.

5. The image processing apparatus as set forth in Claim 1, wherein:

said first signal processing circuit and said second signal processing circuit are provided for respective RGB colors.

6. The image processing apparatus as set forth in Claim 1, wherein:

an average value of a signal level of the noise signal is set to zero.

7. The image processing apparatus as set forth in Claim 1, wherein:

the noise signal is a random noise signal with no regularity in its cycle of amplitude.

8. The image processing apparatus as set forth in Claim 1, wherein:

the noise signal is obtained from, by using an arbitrary noise pattern table, switching a starting point of the noise pattern table per field or per noise pattern table.

9. The image processing apparatus as set forth in Claim 1, wherein:

a histogram of an amplitude of the noise signal shows Gaussian dispersion where zero amplitude of the noise signal is at the center.

10. An image processing apparatus, comprising:

a signal processing circuit for adding a noise signal to an inputted  $m$ -bit ( $m$ : a natural number) digital signal, and for outputting a  $Q$ -bit ( $Q$ : a natural number) digital signal obtained from rounding off a less significant  $(m - Q)$  bit ( $Q < m$ ) from the  $m$ -bit digital signal.

11. An image display apparatus comprising a display means for displaying an image, and driving means for driving the display means, said image display apparatus, further comprising:

an image processing apparatus that includes (a) a first signal processing circuit for applying gamma correction to an n-bit ( $n$ : a natural number) digital signal inputted as a video signal and for converting the n-bit digital signal into an m-bit ( $m > n$ ,  $m$ : a natural number) digital signal, and (b) a second signal processing circuit for adding a noise signal to the m-bit digital signal from said first signal processing circuit and for outputting a Q-bit ( $Q$ : a natural number) digital signal obtained from rounding off a less significant ( $m - Q$ ) bit ( $Q \leq n$ ) from the m-bit digital signal.

12. The image display apparatus as set forth in Claim 11, wherein:

said first signal processing circuit includes bit converting means for converting the inputted n-bit digital signal into the m-bit digital signal in accordance with a pre-set value.

13. The image display apparatus as set forth in Claim 12, wherein:

the pre-set value in said bit converting means is rewritable so that unevenness in properties of said driving means may be absorbed.

14. The image display apparatus as set forth in Claim 12, wherein:

the pre-set value in said bit converting means is rewritten in accordance with brightness in surroundings of said image display apparatus.

15. The image display apparatus as set forth in Claim 12, wherein:

the pre-set value in said bit converting means is rewritten in accordance with brightness of overall display image of said display means.

16. An image display apparatus, comprising:

an image processing apparatus which includes a signal processing circuit for adding a noise signal to an inputted  $m$ -bit ( $m$ : a natural number) digital signal and for outputting a  $Q$ -bit ( $Q$ : a natural number) digital signal obtained from rounding off a less significant  $(m - Q)$  bit ( $Q < m$ ) from the  $m$ -bit digital signal.

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